Better Crops

The Pocket Book of Agriculture

10 Cents. September 1923

In this issue—Dr. Frank Crane—Jeff McDermid—
J. C. Penhook—Brief Digest Fertilizer and Crop News

Soil that responds readily—

One of the most important angles of the present agricultural situation relates to soil fertility.

To utilize farm labor efficiently, each person should be able to produce the largest possible amount of results from the hours of labor he puts in.

A rich, fertile soil that readily responds and gives a large yield per acre is in the end the most economical soil to work under the present conditions.

No one is so rich that he can afford in these times to neglect the proper maintenance of soil fertility. When crops are "selling off" at low prices, the wise farmer *increases* rather than reduces the fertility of his soil, knowing that his salvation lies in securing even greater yields from the same labor costs.

And wise farmers insist upon fertilizers that have a big percentage of

potash

The essential plant food

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The Agricultural Service Bureau of the American Agricultural Chemical Company was organized before the first County Agent made his appearance in the United States. The primary object of the Bureau has always been research. Through the years, valuable data has been gathered regarding soil and crop conditions in various parts of the country, and this information has been made freely available to all.

The coming of the County Agent meant the gaining of a valuable ally in our research work. We met him on common ground, for we were both seeking the same thing—facts about the soil and crop needs of his county.

In five Northern and Middle-West States alone, our Agricultural Service Bureau has worked with no less than 154 Counties Agents in conducting the co-operative fertilizer tests. The valuable information gained from these and other tests, is yours for the asking. Consult our Agricultural Service Bureau regarding your soil problems.

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Field Tested Fertilizers

Better Crops

The Pocket Book of Agriculture

VOLUME I NUMBER ONE

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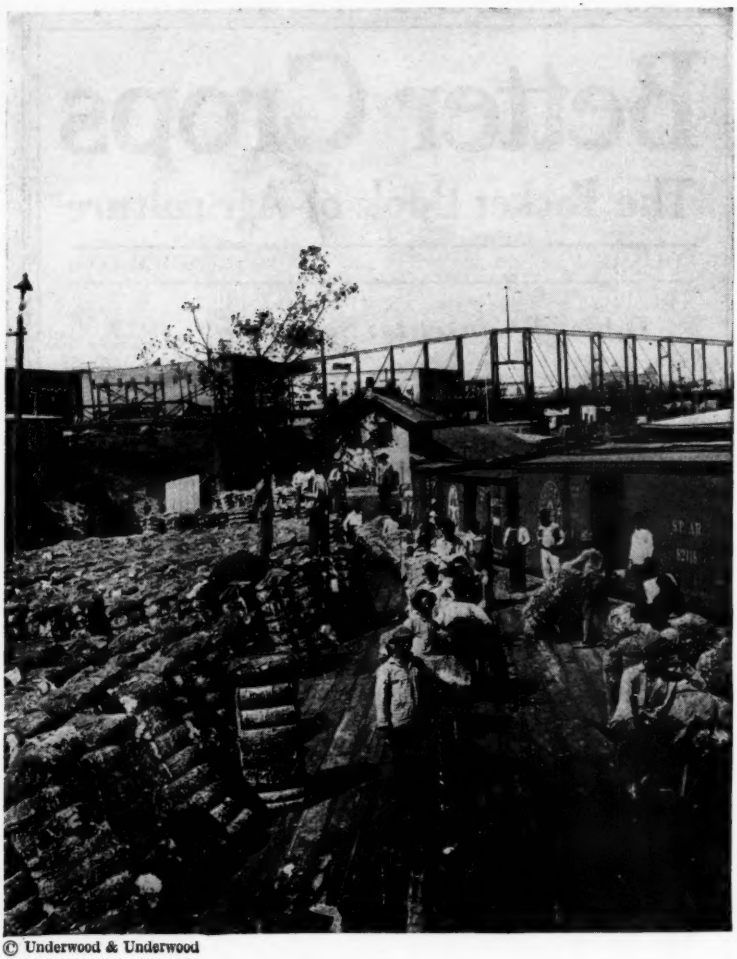

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¶ *Looks like a good year for the cotton farmer, in spite of the boll-weevil.* ¶ *Latest Government reports show a reduced percentage and cotton prices soar. Diversification of crops in the South will get a severe blow if cotton goes much higher.*

BETTER CROPS

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VOL. I NEW YORK, SEPTEMBER, 1923 No. 1

Do You Like Your JOB?

The music's in the man—not in the violin

By Jeff McDermid

WHEN Ole Bull, the famous English violinist, received an invitation to display his talent before the King and Queen of England, some jealous artists, their hearts fused with vitriol and their arteries flowing with hate, were enviously furious.

When the green-eyed god, burning his incense of asaphœtida, takes possession, the devil laughs with glee—his time is coming. The aim of the world being love, not hate, folks who carry malice soon discover they have no friends to aid them in their troubles—the envious artists could find no way to prevent Ole Bull from giving the exhibition of his skill.

In despair they sought a more direct method—they'd steal his violin, by thunder!

And so, on the eve of the concert, as the theatre was filling up with good folks who had come to hear Bull and see the King, a pair of wretches from the envious clan crept into Ole's dressing room and stole his fiddle—a priceless heirloom of marvelous tone.

The orchestra strummed its opening overture—the curtain rose—a hush of expectancy dropped like a mantle over the audience and Ole Bull stepped forth—*without his fiddle!*

Unprecedented! What would His Majesty say!

"Your Highness—and ladies and gentlemen!" rolled forth the famous violinist's voice. "I am sorry to announce that in some unexplainable way my violin has disappeared from my dressing room, and I am forced

to appear with no means of entertaining you.

"I attribute this piece of astounding thievery to a brace of infamous scoundrels who hoped, by stealing my fiddle, to make me appear ridiculous. With your permission I am going to prove to them—and to you—*that the music is in the man, and not in the violin!* I have sent out to a music stall for a cheap fiddle. I gave my man a pound note and told him to purchase the first one that he found that could be bought for that price. He will return in a moment and we will proceed with the concert!"

Thus out of a cloud of gloom the Optimist weaves a strand of purest gold—the evil mind proposes, the righteous, with the strength of Gideon, disposes. All of which is tried, tested and true.

The man returned.

Bull took the pound note fiddle, tuned it carefully, and waved his bow to the orchestra leader as a signal to begin.

Softly at first, but gaining strength and sweetness, even as a girl flowers and evolves from rosy maidenhood into sweet and charming womanhood, the strains from the cheap fiddle mounted and soared to the roof of the old theatre, echoing back as if sent from Heaven—sweeter music had no man's ears ever heard.

The crowd was first charmed, then thrilled and finally could no longer restrain its enthusiasm. A wild, beating wave of hilarious applause burst forth, even before Bull had completed his masterly rendition!

The King himself rose and led the cheering.

For a man had proved beyond all question that the music was in himself and not in his instrument.

The envious artists crept from the hall unseen, unsung, unnoticed. Those who vibrate evil and secure their joy in undermining others soon discover that the world has no niche for them, which is as it should be.

No one can kill the power that is in another man—that privilege is granted only to the man himself. Others cannot harm you. If you are harmed, if your prestige is shaken, your reputation shattered, look back and see what act of yours is responsible, and remember, brother, the music is in you, not in your job.

In every age, on every page of history, we see folks who are dissatisfied with their lot—artists who wished they had trained for the ministry, ministers who vow they would have had the world at their feet had their kind but brainless parents placed a palette and brushes in their hands at the psychological moment!

All wrong, brother, all wrong.

One man takes a board and makes a sidewalk of it; another chap, with clearer vision, takes the other half of the same board, tests it for fibre, strength, growth and resonance and makes a Stradivarius of it—the wood is the same—the difference is in the vision.

Those folks, who, enraged at the failure of Nature to place them in the proper niche, rant and rave and moan and pine and droop and fuss—these folks simply do not see what is in the wood. All of which goes to prove, without further exhaustive calculations, that each of us is put into this world to effervesce, create, evolve and fructify in our own little place—and woe be unto him who will not understand this—his job will wither, crumble and smother itself under a mantle of failure.

We, in agriculture, sometimes wish the gods had (*turn to page 55*)

762 Eggs Pay Plasterer for One Day's Work

A Virginia farmer shows why farmers are not building new barns and houses

By Llewellyn Trapp

A MAN who runs a farm in Virginia sent to the *New York Herald* the other day a letter in which he translated the cost of construction at present wages into food at the price the farmer gets.

The example he gives is most illuminating:

"It takes 63½ dozen, or 762, eggs to pay a plasterer for one day of eight hours work.

"It takes 17½ bushels of corn, or a year's receipts from half an acre, to pay a bricklayer one day.

'It takes twenty-three chickens weighing three pounds each to pay a painter for one day's work in New York.

'It takes forty-two pounds of butter, or the output from fourteen cows, fed and milked for twenty-four hours, to pay a plumber $14 a day.

"It takes a hog weighing 175 pounds, representing eight months' feeding and care, to pay a carpenter for one day's work."

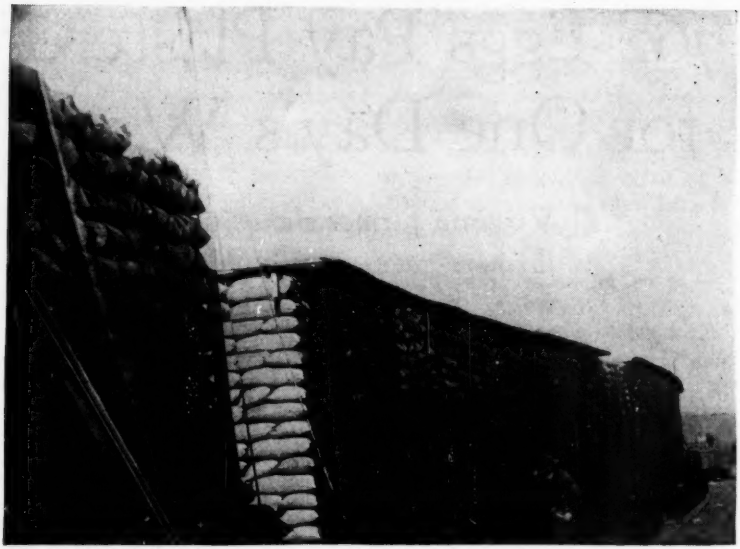
These facts are beyond argument. Reduced to barter and exchange the charges made by skilled labor are startling to say the least. How do they "get away with it," to use the slang expression.

The answer is simple. Labor is organized. Its creed is, "Work less, demand more, increase membership." The farmer, in his present unorganized state, protestingly accepts what is handed to him. He dare not strike, from patriotic reasons. Food is the coin of the earth. He must go on producing, else nations starve. And his overproduction ruins his own market.

Labor knows how to handle its oversupply. So does Capital. When there is an oversupply of labor, each man continues to hold his job, but "strikes on the job"—that is, he simply loafs along and thus makes work for a brother workman. When there is an oversupply of oil, the Standard Oil and other big oil companies do not dump it on the market and thus destroy the selling price.

No, indeedy! They store it in tanks and hold it until the market is ready for it—at their own price.

Tire manufacturers, through The Rubber Club, an organization composed of the heads of the big rubber companies, wisely calculate just how many new cars will be manufactured each year. They then plan to produce just four tires for each new car, adding to this number a sufficient supply to (*turn to page 56*)



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What about

By Jeff McDermid

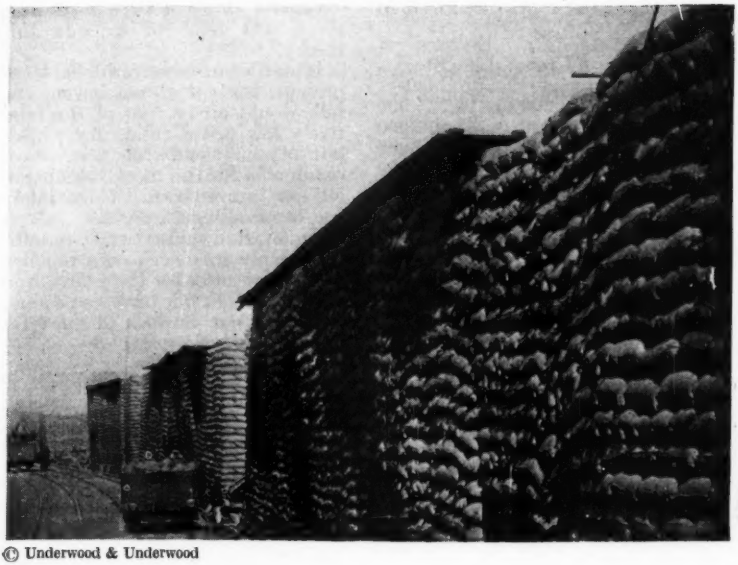
MARK TWAIN is reputed to have said, "Everybody talks about the weather, but no one ever seems to do anything about it," and the farmer today feels that everybody is talking about wheat—talking until it is almost a taboo subject in many quarters—but no one seems to do anything about it.

True, several organizations are planning to relieve the situation. Many solutions have been brought forward, discussed, discarded. Probably when all is said and done, the poor farmer will do as he has always done in the past; plant more wheat and hope that by the time the next crop comes in things will be different.

But, beyond the individual farmer's problem in marketing wheat with elevator prices at 80c or thereabouts, what is the probable effect of dollar wheat upon the country at large?

B. C. Forbes, writing in the *New York American*, takes a rather optimistic view of the whole situation, and, using the Government's statistics he tries to prove that wheat is not the important crop that some of us think. He says, in part:

The truth is—and it should be published far and wide—that wheat



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WHEAT?

¶ Is wheat the important crop it is supposed to be?
¶ Should it be fed to the hogs?

constitutes less than 10 per cent. of the total value of our annual crops and a mere 6 per cent. of the total value of the gross wealth produced by our farmers.

Wheat is not even the most valuable single crop raised on American farms. Corn usually is worth twice as much as wheat. Hay and forage rank far ahead of wheat.

Cotton, lint and seed also greatly outrank wheat in dollars and cents.

Then Mr. Forbes, using tables prepared by O. P. Austin, statistician of the National City Bank of New York, shows that wheat stands fourth in value:

1922 CROPS

Corn	$1,900,000,000
Hay and forage	1,409,000,000
Cotton, lint, seed	1,370,000,000
Wheat	864,000,000
Oats	479,000,000
Tobacco	306,000,000
Potatoes	263,000,000
Apples	202,000,000
Beets (1920)	100,000,000
Wool (1920	85,000,000
Rye	50,000,000
Miscellaneous	1,933,000,000
Total	$8,961,000,000

He then goes on to show that live stock products, prices on which have on the whole been fairly satisfactory, almost equal the total

value of all the crops produced in the United States:

	Value of Crops Produced	Live Stock Products
1913	$6,132,759,000	$3,716,754,000
1914	6,111,684,000	3,753,277,000
1915	6,907,187,000	3,868,304,000
1916	9,054,459,000	4,352,000,000
1917	14,222,000,000	5,852,000,000
1918	14,331,000,000	8,149,000,000
1919	14,755,365,000	8,957,000,000
1920	10,909,000,000	7,354,000,000
1921	7,028,000,000	5,339,000,000
1922	8,961,000,000	5,349,000,000

Furthermore, Mr. Forbes asserts, "it will help to correct false ideas and help to keep the record straight if we study the following table showing the annual value of our wheat crop as compared with the gross wealth produced on our farms." He then calls attention to the following table:

	Gross Farm Wealth Produced	Value of Wheat Crop
1913	$8,849,513,000	$610,122,000
1914	9,894,961,000	878,680,000
1915	10,775,000,000	930,302,000
1916	13,406,000,000	1,025,112,000
1917	19,331,000,000	1,278,112,000
1918	22,480,000,000	1,881,862,000
1919	24,982,000,000	2,074,078,801
1920	8,263,000,000	1,197,263,000
1921	12,367,000,000	737,068,000
1922	14,310,000,000	864,000,000

These figures are presented, he states, not with the idea of belittling the seriousness of the drop in wheat prices to $1 a bushel, and consequently to, roughly, 80c on the farm, but for the purpose of correcting widespread misapprehension concerning the rôle wheat fills in our agricultural scheme of things. Continuing in this optimistic vein, he says:

A lot of people and newspapers have been talking as if, no matter what prices our farmers receive for anything else or everything else they produce, the general business of this country could not continue even half-way satisfactorily if dollar wheat should continue.

Careful study of the figures here given will tend to explode this theory.

If optimism were fashionable at present, instead of pessimism, the talk would all be, not of the relatively low prices ruling for wheat, but of the wonderful fine prices obtainable for the most valuable of all our crops—corn. Corn lately has been selling 25 per cent. above the quotation ruling twelve months ago. Only this week corn touched a new high price for the year. And remember that our farmers produce three to four bushels of corn for every bushel of wheat.

But others do not seem prone to take to this optimistic viewpoint. Some farmers, writing to their favorite farm papers, seem to feel that the only solution lies in raising less wheat. They seem to have forgotten that either less acreage or a smaller crop per acre will bring higher prices next season, and that should they pursue this short-sighted policy wheat will be high just at a time when they have little to sell.

A much more intelligent suggestion comes from R. T. Garwood of Edgar County, Illinois, who writes:

One thing that would help wheat prices would be to appeal to cereal companies to sell their products on a closer margin. They buy wheat for 90 cents a bushel and sell it in 10-ounce packages for $15 a bushel.

But Mr. Garwood must remember that the big cereal companies that use tons of wheat in their patent breakfast foods, and for flour, are organized and can demand, and get, the price they ask. The farmer in his present disorganized state cannot demand a profit, but must accept whatever is allotted to him.

Co-operative marketing of grains seems, on first thought, to have the germ of an idea, but regardless of the success of other methods of co-operation, the Moses who can

lead the wheat farmer out of the wilderness does not seem to have put in his appearance. The U. S. Grain Growers has busted up. As *The Prairie Farmer* puts it:

While much wheat is marketed co-operatively in Oklahoma, Texas and the Pacific Northwest, those co-operatives are too small to have any effect on the general price level. Co-operative grain marketing in the Middle West has been at a standstill for a good many months. The hybrid U. S. Grain Growers, which was a cross between the ideas of the advocates of commodity merchandising on the pooling basis and the representatives of farmers' elevators, has never been able to market much grain. It signed up a large amount of grain, borrowed a great deal of money, and finally broke up at the historic annual meeting nearly a year and a half ago.

Still there is a demand among farmers for some sort of Government action. *The Prairie Farmer* continues:

There is much sentiment among farmers in favor of some sort of government action to bolster up the declining markets. The demand for this is especially strong in the Northwest, and an influential group of senators and congressmen will demand that congress take some action on this question when it meets in December. The plan that meets with greatest favor is the establishment of a government grain corporation which will buy the surplus at a specified price at the end of the season. The argument for this plan is that it will remove the fear of a heavy carry-over and will stabilize prices at a satisfactory figure throughout the year.

A number of business men, among them Geo. N. Peck, president of the Moline Plow Company, endorse the general idea of government action to stabilize grain prices. The American Farm Bureau Federation opposes this plan on the ground that consumers are in the majority in the United States, and that government interference with prices will work to the disadvantage of farmers in the long run.

But the real danger to the country lies in the fact some farmers are planning to let the fertility of their soil suffer. They say that if they cannot get a price for their wheat that pays them to grow it, they cannot continue to fertilize their land. This is a situation demanding the earnest co-operation of the leading agronomists of the country on whose shoulders lies the burden of proving to farmers who are laying this course of action how foolish such a program must turn out to be. Brown's Crop Talks in *The Orange Judd Farmer*, in answering one correspondent who outlines the fact that he is determined to cease buying fertilizer until wheat again rises, says:

I hardly agree with the implied suggestion of this correspondent. We are at a stage of cropping in Illinois when deterioration and tearing down of soils goes on faster and faster, unless something is done to check this destruction; and on most farms something must be done in the way of replenishing crop-making material. Letting up on soil work now simply means that yields will decrease, and that means a mighty low pay for the labor put upon fields to produce a small crop.

And everyone seems to overlook the point that it costs just as much to raise a small crop as a large one. A soil that is rich and fertile in plant food is the soil that produces, for each unit of farm labor, the greatest number of bushels of grain. As one Western writer states:

One of the important angles of the question relates to soil fertility. The best utilization of farm labor requires that each person be able to produce the largest possible amount of results from the amount of labor he puts in. A fertile soil that responds readily and gives a large yield per acre is the economical soil to work with under these conditions. No one is so rich that he can afford in these days to neglect the proper maintenance of soil fertility.

Wheat shrinks (*turn to page 57*)

A Little Chat

BETTER CROPS completely covers a field untouched by any other single publication.

Its readers constitute every person in the United States in any way connected with the science of agriculture—county agents, soil advisers, agronomists, experiment station men, state and federal bureau members, and heads of co-operative societies.

Better Crops is not a farm paper. No farmer receives a copy. Its editorial material is intended to be read by those to whom the farmer refers his important problems.

It is a needed magazine. As succeeding issues are published and as its personnel becomes more fully organized, it will be more and more apparent that *Better Crops* is one source of authentic, unbiased news of what is going on in the agricultural world.

In size, format and editorial policy this journal is built for the busy man. It fits the pocket; a welcome relief from bulky, ponderous magazines. Each future issue will contain brief, unbiased digests of the more important phases of the crop situation. These digests, it is planned, will render its readers a similar service to that rendered by the *Literary Digest* on world happenings.

Any publication should truly be of and for its readers.

You, as a reader, can contribute immensely to

with the Publisher—

the value of *Better Crops* to other readers. Suggestions and criticisms will not only be appreciated but welcomed.

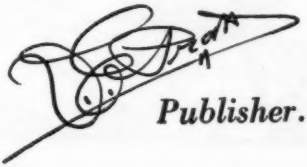
Stories, articles, editorials, pictures and statistics used in future issues should come from you. This issue is "home made" and accordingly does not realize, except in a small way, the plans we have on foot for the journal.

In this number are two invitations, one of which you should accept. The first is our invitation to submit stories and articles, which, if accepted, will be paid for at the rate of 1c per word.

The other invitation is to compete for the $50.00 prize awarded the best 2000 word article on the subject, "What Fertilizers Have Done for My County" (or my State, or Country). In this contest nothing counts but facts. English, rhetoric, appearance of manuscript and neatness mean nothing and will not influence the judges. A true presentation of the facts is all that is required in this contest.

Better Crops is a magazine for you.

Help us to make it help you. Tell us what you want to see in future issues and we will do our best to follow your suggestions.



Publisher.

A tale from the Arabian Nights which may still be experienced at the present day

The Three

"UNHAPPY stranger! Dost thou come here to increase our misery, and to perish thyself?" Such were the words used by the hungry and poor-looking guardian of the gate of the mighty city of the Kalif, to the traveller who, on his sturdy

BROTHERS

By Dr. W. Jervitz

palfrey, craved permission to enter the city. In great amazement the traveller asked what was amiss and received the answer, "Thou evidently hast come here from afar, O Stranger, that thou knowest not of the great misfortune that has befallen our all-powerful Kalif and his city. Although the God of Mohammed makes the sun to shine on us as he used to do, and although the good spirits of heaven send us rain when we are in need of it, yet grow our grain and our millet no more as in former years. Every year the devastating famine comes anew, bringing our children into dreadful misery and leaving our best warriors powerless and defenceless against our enemies." "And have ye then tried no remedy for this pestilence?" asked the stranger. "By the beards of the Prophets, Yea! For years already has our land been cursed, and the Ruler of the Faithful, Allah, bless him, proclaimed that he who succeeded in banishing these evil spirits from the land would receive in marriage the hand of his daughter. But all means which have been tried have been of no avail, and we must face further famine." The stranger listened with great eagerness to the words of the

guardian of the gate and entreated him to tell him further and with more detail all that had taken place.

He heard that at first the priests and the wise men assembled had tried to dispel the ban by prayers and charms. All these proved of no avail, and the Kalif and his people were in veritable despair. At last there came two strangers from the Land of the Setting Sun, each carrying with him a most mysterious sack. They wished to be brought into the presence of the Kalif, and each declared that by means of the content of his inexhaustible sack, the misery could be stayed, and the land be made as rich and happy as in former days.

"What did they call themselves, and what success had they?" cried the newcomer in great excitement. "Should'st thou know these two strangers, then thou hast reason for deepest compassion. One called himself Phosphorus, and the other, who also had a name strange to our ears, was called Nitrogen. Both of them now languish in prison, because they could not fulfill their promise with deeds. The one, Nitrogen, declared that he could make the corn grow so luxuriantly, as no one in the land had previously seen; the other said, 'What use is it to you that the corn grows high, if the ears be empty?' and promised to produce grains of corn as large as hazelnuts. The Kalif, in his

wisdom, entrusted to each a province in which he should prove the magical virtues of his sack. In truth, after a year Nitrogen produced stalks higher than a man, and the grains of corn which Phosphorus produced were as large as hazelnuts. Alas, in the second year, the corn and straw were again small, and in the third year the old misery, famine and pestilence returned.

"Then the Kalif was wroth and had them both thrown into prison, where they led a miserable existence in the company of snakes and poisonous vermin."

"Oh! lead me to the Kalif," cried the stranger. "Unfortunate creature, wilt thou rush headlong to ruin? What would'st thou do?" But the stranger heeded not the warning; he was brought before the throne of the Kalif, and bending low said, "Ruler of the Faithful, I have heard of the misery that prevails in thy land, and I wish to help thee." But the Kalif said, "Hast thou also heard of these men, who came from the Land of the Setting Sun, and who now languish within the walls of my prison? They came here with as foolish notions as thou; would'st thou share their fate?" "As Allah ordains!" answered the stranger. "Set both of these men free, and I will, with their help, thy land deliver. These men are no imposters, as thou hast naturally supposed, but they lack prudence. Their selfishness has led them into this misfortune. Should it please your Highness, I will relate to thee their story, which is the same as my own:

"There lived once in the distant Land of the Setting Sun a merchant to whom a kind fairy had presented a talisman which consisted of three magical sacks whose contents were inexhaustible. He had only to strew a little from each of these three sacks on the land and even the driest sand bore a hundredfold. As the merchant was at the point of death, he summoned before him his three sons, whom he had named to honour the fairy after the three spirits which dwelt in the three sacks. Handing over to them the talisman, he said, 'I bequeath to thee jointly these three sacks. Ye will procure for yourselves riches and honour, if ye hold fast together and never part from one another. The spirit of the sack called *Nitrogen* makes the plants grow quickly;

the spirit of the second sack called *Phosphorus* makes the grains large and the ears full; the spirit of the third, *Potash*, gives to the plants health and vigour; it makes the corn nutritious and gives the fruit its good flavour. None of these qualities can the plants, which we mortals must cultivate for our daily bread, lack. Woe be the day, when ye quarrel and strive over possession of the sacks and drift apart! *Only if the three spirits work in unison* can the blessing of the good fairy, who gave me these three sacks, be obtained. Think over this well!' After the merchant had said this, his soul departed.

"But the sons quarrelled with one another and obeyed not their father's words, so that they went and divided up their inheritance, each taking a sack. The eldest brother took that which obeyed the spirit Nitrogen, the second that which gave the full ears of corn, and the third the sack in which the spirit of Potash dwelt. That youngest brother am I, O Kalif! Both my brothers then went into the country places amongst the farmers and promised them rich harvests by means of their magical sacks, if they gave them large sums of gold. The farmers believed them and paid them well. But when I came and told them the magical power of Potash was needed to give the grain vigour and health, they sent me away, for they had no more money. But the magical power of the talisman only works when Nitrogen, Phosphorus and Potash work in unison, and my sack, with the spirit of Potash, they had not.

"So the people got no return for the money they had spent; and when my brothers returned again the next year, they were driven away with insults and abuse. Now they have also come to thee, O Follower of the Prophets, and may Allah send his blessings on thee! How much less could each brother working alone serve thee, seeing that the magic of the talisman only fulfills its purpose if (*turn to page 52*)

Si Bellew Says, "Henry Ford is Smart Man!"

¶ Flivver replaces horse; no more manure; then Ford goes into the fertilizer business!

By Si Bellew

THIS here now Hennery Ford, he's a right smart feller, sez I.

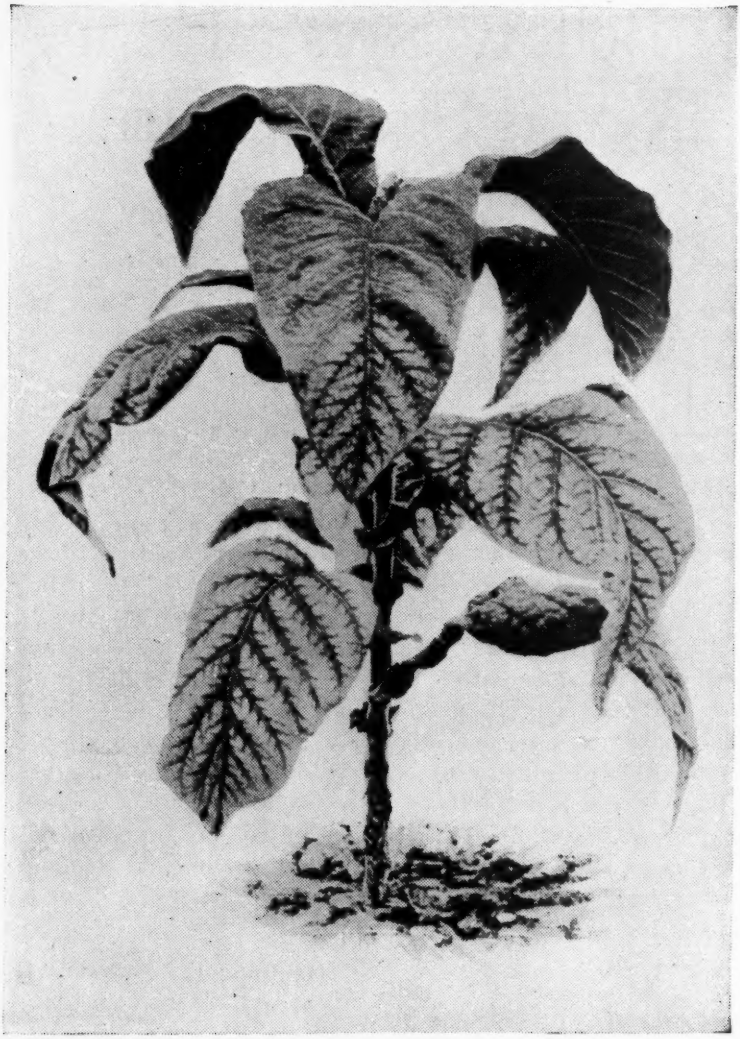
First off, he lays his plans to ketch 'em comin' and goin'. Y' see, it's like this, now. The farmers used to do all t' work with horses. Drivin' and plowin' wa'nt done with flivvers and tractors. They was allus plenty m'nure, roun' th' barn, an', come plantin' time, Mister Farmer loads up the ol' spring waggin wit' manure and off t' the field to spread it.

No fertilizer needed, sez Mister Farmer, 's long at I got plenty of m'nure. Then 'long comes this here now Ford and lookit what's happened! Everythin' done wit' gasoline! Plowin's done with tractors, an' Mister Farmer drives t' town in his Hennery. And where's t' m'nure. They ain't none. Y' can't spread crank case oil on th' land, kin ye? T' m'nure is jes' nacherly vanished.

'n here's where I say this Hennery Ford's a smart feller. After he gits rid o' all th' m'nure, then he gits hisself ready t' go inta the fertilizer biziness! Ketches 'em comin' an' goin'. He ain't got Muscle Shoals yit, but Time an' Hennery Ford don't wait fer no man—he's a gettin' fertilizer now out o' his smoke-stacks! Yes sir-ee, bobtail! He takes the smoke-stacks, n' scrapes 'em an' gits out 'monium sulfate, er somethin' like that and he's a-goin' to sell it fer fertilizer.

Nex' thing he's gotta do 's t' fin' a way to make fertilizer outa th' tin lizzies that are ready fer the junk-heap. They's plenty of 'em in our county—nuf t' make lots of fertilizer!

NOTE: Ford dealers throughout the country will soon be selling "Ford Ammonium Sulphate," a high nitrogen product said to be manufactured from coal smoke. It is said not to be the regular by-product of the coke ovens, but to resemble table salt.



Tobacco plant of flue-cured type affected with sand drown. Note that the plant as a whole and the individual leaves have attained normal size and shape and the leaf surface is relatively smooth. The disease begins in the lower leaves and at the tips of the leaves. The veins retain their green color long after the leaf lamina becomes bleached. The leaf lamina usually does not die in local areas or spots as in potash hunger. Reproduced from lithograph, Journal Agricultural Research, Jan. 6, 1923.

¶ *"Sand drown" is produced by a lack of sufficient available magnesia to form the green coloring matter of the plant.*

¶ *It affects both tobacco and corn.*

Another Plant Disease Conquered

The United States Department of Agriculture cooperating with the North Carolina Department of Agriculture discovers cause of "Sand Drown" and a practical method of control.

THE serious leaf disease affecting tobacco, known to tobacco growers as "sand drown" first came under observation about 1912 at the Tobacco Station of North Carolina Department of Agriculture, located at Oxford, and has appeared each year on the tobacco grown at that station. It has been frequently seen on the sandy tobacco soils of the Connecticut Valley, and is liable to be widespread in wet seasons in those tobacco growing sections where soils distinctly sandy in character are found. The disease occurs in the more sandy portions of the field after a heavy rain.

In recent field investigations conducted by the Tobacco Branch Station of the North Carolina Department of Agriculture in connection with the Bureau of Plant Industry, U. S. Department of Agriculture, it was found that this disease was quite common, and was apt to occur in more aggravated form after a heavy rainfall on the more sandy spots of the field.

In this disease the green and yellow pigments of the leaves are affected, with a result of mottling or blanching of the leaf tissues; but the leaf tissues usually do not die as quickly as is the case in potash starvation. This blanching in the case of "sand drown" invariably begins on the lower, older leaves, and the first symptoms appear at the tips or outer margins of the leaves, the veins retaining their normal color. Corn is also affected in much the same way.

Field and laboratory studies show the cause of "sand drown" to be insufficient supply of magnesium in the soil or fertilizer, and in a general way it might be termed "Magnesium starvation." The ratio between sulfur and magnesium appears to be a factor of importance; increasing the amount of sulfate in the soil has a tendency to intensify the symptoms of magnesium deficiency. The addition of magnesium chlorid or magnesium sulfate to the fertilizer prevents the disease. Double Manure Salt and Kainit were effective in preventing the disease.

In the field experiments conducted at the Tobacco Station, near Oxford, N. C., potash from several different sources was used without lime, with ground limestone, and with dolomite which supplies both lime and magnesium. The Kainit and Double Manure Salt contain considerable magnesium. German Muriate and German Sulfate of Potash contain some magnesium but much less than German Kainit and Double Manure Salt.

The per acre application of ammonia, phosphoric acid, and potash was the same on all six plots: 40 pounds ammonia derived from dried blood; 64 pounds phosphoric acid from acid phosphate; 36 pounds of actual potash (K_2O) in the form mentioned in the table.

The results given in the following table represent the average of two years' work on three fields.

On the No Lime plots both Mu-

riate plots yielded better than the Sulfate plots; but on the Limestone plots the German Sulfate and German Muriate yielded the same and outyielded the American Muriate and Sulfate. The Dolomite increased the yield and value of the tobacco on all plots, except the German Double Manure Salt plot, over the No Lime and ground Limestone plots.

Where Double Manure Salt (a sulfate of potash magnesia) was used there was practically no difference in yield and not a great deal of difference in value between the Salt and Kainit, containing magnesium sulfate and magnesium chlorid, had no "sand drown" regardless of whether the plot had Dolomite, ground Limestone, or No Lime.

The conclusion obviously to be drawn from the results of these and other experiments is:

"Sand drown" is apt to occur, in wet seasons, on the more sandy spots of the tobacco field where the purer forms of potash salts, Muriate and Sulfate of Potash are used in the fertilizer. The high grade Sulfate of Potash may even aggravate

Plot No.	KIND OF POTASH	*Limestone* $CaCO_3$ 90.46% $MgCO_3$ 1.32 Yield in Lbs.	Value	*No Lime* Yield in Lbs.	Value	*Dolomite* $CaCO_3$ 52% $MgCO_3$ 36% Yield in Lbs.	Value
1	Trona Muriate.....	670	$205.66	776	$248.88	850	$275.54
2	German Muriate...	753	242.08	693	219.82	863	288.66
3	Nebraska Sulfate...	613	181.65	606	187.15	783	252.56
4	German Sulfate....	753	218.24	606	179.06	803	263.90
5	Double Manure Salt	853	254.46	860	279.13	860	262.59
6	Kainit.....	826	239.42	833	250.67	1000	296.18

Dolomite, No Lime, and Limestone plots. Approximately 55 pounds of magnesium sulfate was applied in the Double Manure Salt, and the further addition of magnesium carbonate in the Dolomite apparently had no effect.

It would appear that magnesium, either in the form of sulfate, chlorid, or carbonate, is a factor of considerable importance in the fertilization of the tobacco crop, especially on the more sandy soils.

So far the yield and value of the crop produced on the various plots has been discussed only. But from the standpoint of the amount of "sand drown" on the six plots the German Double Manure Salt and Kainit gave most striking and conclusive results in preventing the disease.

Plots 1, 2, 3, and 4 (the higher grade potash salts) had about the same amount of "sand drown" on the ground Limestone and No Lime plots, but there was no "sand drown" on the corresponding plots when the Dolomite, containing magnesium carbonate, was added.

But the plots 5 and 6 which received German Double Manure the disease. Fairly pure ground Limestone does not control the disease.

Dolomite or dolomitic limestone, containing magnesium carbonate, used with the refined potash salts, Muriate and Sulfate of Potash, effectively controls the disease.

The German Potash Salts containing magnesium, Double Manure Salt and Kainit effectively control the disease whether used alone or with Dolomite.

Therefore, if the source of potash in the complete fertilizer is unknown or in doubt, and if the per cent. of potash is small it is important to apply additional potash in the form of German Double Manure Salt to furnish both the potash and magnesium requirement of the tobacco plant and the control of "sand drown."

If the complete fertilizer already contains a sufficient per cent. of potash, but the source is unknown or in doubt, the application of Dolomite, 1,000 lbs per acre, may be made to furnish the magnesium necessary for the effective control of the disease.

Where Dolomite (*turn to page 54*)

Is Lime a Plant Food, or Is It a Tonic?

¶ Bringing out the difference between the need for lime and for fertilizer

By J. C. Penhook

WHAT is the difference between fertilizer and lime. Is lime a plant-food?

These are questions that every County Agent must answer often daily.

Fertilizer is a food for plants. Lime is not a food. There are three main plant foods—nitrogen, phosphorous and potash. Lime is more or less of a "tonic" that builds up the plant and gives it the stamina to withstand conditions of the growing season. Lime improves the physical condition of the soil, but the plants do not use it as food.

Many people in cleaning their teeth now use a tooth paste that is an "anti-acid." In other words, it is an alkaline paste that offsets or neutralizes the acid of the mouth and thus saves the teeth. But this tooth-paste is not a food. So lime in the soil neutralizes the acids present and improves the soil, yet it is not a food.

When you use a fertilizer you usually apply it just before seeding a certain crop, and you expect that crop to derive the benefits of the plant food in the fertilizer. Lime, however, should not be drilled to benefit any certain crop. Especially when applied directly to corn, lime often shows no results. Lime applied before legume crops will show results with a rapidity that often surprises the farmer who has tried liming before corn and got no results.

Lime is applied less oftener than fertilizer. Fertilizer should be applied every season, suiting the mixture to the crop. Lime should be applied every two or three years, and you should expect to see the results of the liming on each crop grown during the three years following the drilling in of the lime.

Where possible drill your lime a short time before sowing clover, soy beans or some legume crop. Legumes react most quickly to lime. All crops following the legumes will then get the benefit, and the legumes will respond so readily to the increased physical condition of the soil that it will pay for the lime.

Many farmers have never heard of the "litmus paper test" for acid soils. In the West they use this test every day to find out if the soil needs lime. Any druggist can furnish either pink or blue litmus paper, and show you how to test soil for acidity. When the soil is acid the blue litmus paper turns pink. When it is alkali, the pink litmus paper turns (*turn to page 57*)

Fatigue—

IT IS not those who work the hardest who get the tiredest.

In fact, many physicians will tell you that those of their patients who have that tired feeling much of the time are people who do nothing at all.

Often the very worst remedy for tiredness is inactivity, the so-called rest cure, and if we would get out and hustle our weariness would disappear.

This is due to the fact that human fatigue is primarily mental.

It is something we think of that "takes the life out of us" oftener than some activity in which we engage. A disappointment or a sorrow or humiliation can fag us more than hard labor.

And we have often witnessed frail people working tremendously without complaint, even boasting that they enjoy it, simply because they are full of eager expectation or ambition or some other strong emotion.

It is what we give out that rests us more than what we take in.

The lake is fresh. It is full of lively fish, and its waters are good to drink, not because it is continually receiving but because there is a continual outflow.

The Dead Sea is dead because, while water continually runs into it, none runs out.

Human energy is like the widow's cruse. Though you take from it continually, it remains full.

Life and life force are not something that you can pile up and keep as you would potatoes or money

by Dr. Frank Crane

Better Crops has obtained the exclusive right to Dr. Frank Crane's articles in the agricultural field.

bags. It is a running current and if it will not run it will spoil.

In the case of energy the paradox is true that what you give you have, and what you save you lose.

When we put forth our powers we find them continually replenished. If we bravely front our tasks, power leaps to our aid.

It is in the presence of danger that we have courage. It is under great strain that there comes to us the power to endure. It is when calamity and disaster descend upon us that there enters into us an unlooked for sturdiness to stand up against evil.

One way to cure fatigue, of course, is to rest when it is necessary and at proper intervals.

But we often forget that the very best way to get rid of chronic fatigue is to have hard work enough to do, dangers enough to face, problems enough to solve, and obstacles enough to overcome.

To quote from Captain Hadfield, "The average neurasthenic is ordered to take a rest in the afternoon, but he spends the time reading his paper; he goes to bed early, but sits up reading a novel. He gives his body more rest than it needs, failing to realize that what the body needs is not relaxation but reinvigoration. It is characteristic of the neurasthenic that in the morning, and possibly after a long night's sleep, he wakes up more fatigued than when he went to bed."

In other words, the best way to be full of energy is to give out energy copiously, and the price of perfect rest will always be hard work.

Copyright, 1923, by Dr. Frank Crane

The Most Profitable *Crop* per Acre

What is the most profitable crop per acre in the United States? Corn? No, you're wrong!

YOU will guess a long while before you get the right answer.

It is cranberries.

According to the recently completed official report of the Department of Agriculture, cranberries earned an average of $288 an acre for farmers who cultivated them in 1922, a higher rate of return than that of any other principal crop grown in the United States.

And the next valuable crop per acre also surprises us. It is tobacco, which earned $177 an acre.

The third crop is hops, which earned $100 an acre.

The list of the dozen leading crops, with their value per acre, is as follows:

Cranberries	$288.00
Tobacco	177.50
Hops	100.00
Potatoes	60.63
Rice	37.14
Cotton	35.21
Hay	19.88
Corn	18.55
Wheat	14.11
Barley	13.23
Oats	11.76
Rye	10.64

It might first be supposed that farmers would immediately rush to put a large acreage in cranberries this year and reduce their other crops. This will not happen, however, because the cultivation of cranberries can be undertaken successfully only in certain sections of the country. The same is true of tobacco.

There will also not be any stampede toward the cultivation of hops, because that involves a large investment and painstaking effort.

The above figures, of course, do not mean that the total value of the cranberry crop is the greatest. On the contrary, corn led all other crops of the last harvest in bringing money to the farmers. The corn crop at December prices was worth $1,900,287,000.

The Winter wheat crop was valued at $614,561,000.

Yet the earning power of corn per acre, according to the department report, was only slightly greater than that of wheat and was very much below that of cotton and potatoes, as can be seen by glancing at the list here given.

Why People Leave FARMS

I should like to see a discussion on this subject in the columns of *Better Crops*. Suppose we start, next month, by hearing why farmers are leaving *your* county—if they are! Drop me a line.

Jeff

AT a recent hearing staged by a Special Industrial Commission appointed by Congress, thousands of farmers, their wives, country bankers and small town merchants from every quarter of the United States were asked to state the reasons for the persistent city-ward trend of farm workers that has been so noticeably evident in recent years. In essence, the conclusions arrived at by the Commission constitute a handbook of information that in a large measure was responsible for many of the good roads appropriations by Congress, and the inauguration of other economic and social measures designed to make the rural classes happier on the farms. The deductions in order, briefly stated, are as follows:

The productiveness of modern farm labor through improved machinery calls for less human endeavor to produce the world's food supply.

The difficulty of getting efficient help on the farm has caused many farmers to quit and move to the city.

The fact that the farm does not furnish work for all of the sons in large families.

The desire for an exciting social environment leads many young people to leave the farms.

The absence of good roads and good schools, and the long distances children must walk to school.

Higher wages paid in the cities.

Shorter hours of (*turn to page 60*)

Jeffisms

Many businesses and professions are suffering from a rush of young blood to the head.

✤ ✤ ✤

What we need today are more sweat glands and fewer monkey glands.

✤ ✤ ✤

It isn't what you put in that counts; it's what you can leave out. Look at the flivver.

✤ ✤ ✤

If you're friendly and human we can forget that you have no brains.

✤ ✤ ✤

When you're right you don't need to lose your temper; when you're wrong you can't afford to.

✤ ✤ ✤

A friend of mine has a sign above his desk that reads: I've been in business forty years. I've been lied about, sworn at, knocked, cussed and beaten. The only reason I'm still here is: I want to see whatinell's going to happen next!

✤ ✤ ✤

There's a use for everything. Even the fellow who always exaggerates. When Columbus returned and told Isabella of the beautiful America he had discovered, he exaggerated terribly, but you and I wouldn't be here if he hadn't.

Jeff

Farmers Borrow

By Herbert Myrick

Editor, Farm and Home

LOANS to farmers from the Federal Farm Loan system now exceed one thousand million dollars.

These are long-term loans, mostly for 35 years, secured by an underlying first mortgage upon the borrower's farm. The interest rate has varied from 5 to 6 per cent. since the system started in 1917, being now 5½ to the borrower, with no commissions, bonuses or rake-offs.

The borrower pays his interest twice a year, including with it about ½ or 1 per cent. upon the principal. Such amortization counts up so fast that when the loan matures it is discharged, because these little amortization payments will by that time have equalled the principal.

Farmers Able to Buy

That is to say, a total payment of about $65 a year on each $1,000 of long-term farm mortgage from the Federal Land bank will in due time discharge principal as well as cover interest meanwhile. Contrast this with the 8, 10 and 12 per cent. interest plus bonuses, renewal charges and rake-offs previously exacted from the farmer, and you will see why it is that even during the hard times of 1920-22 farmers were able to buy quite liberally.

Even more significant is the new Agricultural Credits act, approved March 4, this year. It authorizes the Treasury to invest a total of $60,000,000 in the capital stock of twelve federal intermediate credit banks—$5,000,000 to each. Of this amount, $1,000,000 has already been made available to each bank. This capital will be gradually returned to the Treasury upon the earnings of the new system.

Each intermediate credit bank has the same directors as the Federal Land bank for its district, but its executive personnel, funds and accounting are wholly segregated from the Land bank.

What Banks May Do

The act provides that these new intermediate credit banks may make loans or advances to cooperative agricultural associations, or it may discount agricultural paper for such associations or banks and particularly for live stock loan companies. The credit bank is not allowed to loan direct to the individual farmer.

The new system offers credits over periods of from six months to three years, at present nine months. It is taking some time to work out all its details, but when it functions fully the new system may benefit advertisers largely by enabling farmers to pay cash instead of buying on time, or by rediscounting farmers' notes taken by dealers and manufacturers on account of the goods they sell to farmers.

A description of one of the first loans made under the new system, by the Federal Intermediate Credit

$1,000,000,000

The New Federal Intermediate Credit Bank is to farmers what the Federal Reserve Bank is to business men

bank of Springfield shows clearly how the agricultural trade may benefit from the operation.

An agricultural credit corporation in New York received fresh applications recently from about 100 thrifty and successful farmers for advances averaging about $500 each over periods of from six to twelve or eighteen months. Its own obligation for $50,000 coming due in six months and secured by said collateral was discounted at the Intermediate Credit bank at the rate of 5½% per annum. The local charged the farmer 6%. The spread of one-half of one per cent. was enough to cover the local's expenses.

Thus 500 farmers received an advance at a reasonable rate for their seasonal operations to an average amount of $500. This money was spent for seed, fertilizer, tools, implements, machinery, household apparatus or other supplies and equipment essential to the farmer.

Could Pay Cash

These 100 buyers were thus able to pay cash for such purchases to a total of $50,000. Had these farmers been unable to secure such accommodation they would have been obliged to go without these purchases, which they so much needed in their business.

These borrowers will repay their loans partly or in full as they sell their season's crop, which these loans aid them to produce more cheaply and efficiently. By autumn the system should be so well established that instead of hundreds there will be many thousands of such transactions.

Indeed, my experience as director of the Federal Land bank, and now in a similar position in the Federal Intermediate Credit bank, together with my intimate contact with thousands upon thousands of thrifty farmers, leads me to believe that within a comparatively short time most farmers may be so aided by this new system that they will be in a position to buy (*turn to page 58*)

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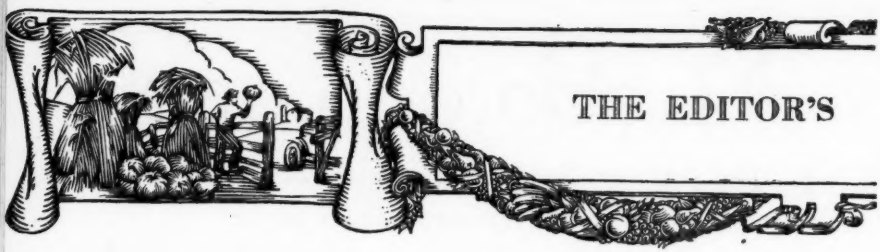


THE EDITOR'S

BUSES ELIMINATE ONE-TEACHER SCHOOLS

It would take more words than could be placed between the covers of this journal to enumerate the changes that gasoline has wrought in the habits and customs of our nation. Si Bellew, in this issue, tells how Henry Ford first removed the source of manure with his flivver and now goes into the fertilizer business. The automobile, the tractor and the bus are working such changes in the rural communities that historians must needs work fast to record them all.

The mail-order houses suffered a loss in business when the automobile came; the farmer could get to town easier and his shopping habits were transformed. Politics was affected. Good roads became a matter of necessity. Railroads began to fear the inroads of bus transportation.

And now education will be improved by the automobile. In many parts of the country the one-teacher school is being replaced by community schools to which pupils come from great distances, *in buses!* Instead of the limited knowledge of a single teacher struggling to impart to a group of rural students the elements of reading, writing, arithmetic and the moving parts of a frog, the community school makes possible the importation of a number of trained

city teachers—the city school moves to the country, and the pupils move to the school in buses. What effect will this have on the coming generation of farmers? It is deserving of thought.

THE PENDULUM SWINGS AGAIN

Roger Babson, famous statistician, says, "For every action there is a compensating reaction." When sugar went to 20c, thousands who had never even seen a sugar plantation went into the business or invested in a company that planned to raise sugar. Then the pendulum swung again, the other way. So much sugar was raised that prices tumbled to 3c. Wall Street bankers will long remember the sugar holocaust!

Nature and habit seem to take care of the law of supply and demand. Wheat is below a dollar—the pendulum has swung to the extreme. But watch the next two seasons. Wheat will again be scarce, prices will soar, and the farmer who has wheat will be prosperous.

POISONING THE BOLL-WEEVIL

"Big fleas have little fleas to bite 'em, and so on, *ad finitum*," runs the old expression. California is importing the ladybug to eat the bug that

eats the fruit crop. Who will find the bug that will eat the boll-weevil? A fortune awaits him.

In the meantime inventors of poisons that can be mopped or sprayed onto the cotton square are cleaning up snug fortunes. Several have been invented that seem to do the trick. One, called "Slazum," clever name, has for its slogan, "Slazum on the square makes cotton anywhere."

Nature seems to take keen delight in making man fight for his sustenance. Wheat has its rust, cabbage its worm, cotton its weevil, tobacco its chlorosis. But for every enemy there is a super-enemy. Look out, boll-weevil! Eat, drink and raise Cain with the cotton crop while ye may, for tomorrow you die!

A DIRT FARMER IN THE SENATE Magnus Johnson leaps to fame. The Farmer-Labor Party has fired a shot that will be heard around the world. Agriculture, a business in which more money is invested than in any other business in the world, shall be represented in Congress some day in a way that will startle the multitudes. Farmers have been too busy raising crops to be able to spend the time to organize. But farm work is getting easier every year. Farms are getting

smaller. A shortage of farm labor forces greater efficiency and an increased use of machinery. The farmer is going to have time to think. In Minnesota he has thought; and it is believed that the election of Johnson makes it possible for the Farmer-Labor Party to capture control of the entire state in 1924. A dirt farmer in the Senate! Let's have more of them.

ENCLOSED FIND POST CARD!

Demosthenes never spoke extempore; always he prepared his speeches in advance—such preparation being, he said, a kind of respect to his hearers. To slight and take no care how and what he said was likely to be received by his audience showed, he felt, something of an oligarchical temper, and was the course of one that intends force rather than persuasion.

Demosthenes could look upon his audience and see whether what he was saying was pleasing and effective. I cannot. But I have enclosed a post card addressed to me in this first issue of *Better Crops* on which you can register your suggestion, complaint, advice, counsel, criticism, praise, disapprobation, remonstrance, approval or sarcasm as you think I deserve! And, as the adsmith says, "do it now!"

Yours to a cinder,

Jeff McDermid

Is Cooperation

By *George* W. *Hinman*

TWO shareholders in a defunct co-operative company called on the writer. They had been enthusiastic co-operators, but they were discouraged. They thought the co-operative business was dying out.

The co-operative method of doing business is not dying out. It is less advertised in this country than during the hard times. That is all. But it goes on just the same.

Among American farmers alone there are reported to be about 5,000 buying and selling organizations, all conducted on the co-operative plan of cutting out the middlemen wherever possible. In one year these co-operatives buy goods and sell foodstuffs to the amount of $800,000,000 to $900,000,000. Those are the Government figures. And the movement to build up this business goes on every day and every hour. The farm papers tell the story every week. So do many of the trade papers.

Among most business men there is still a prejudice against co-operation among buyers and sellers. They seem to fear that the co-operators will push them off the earth. They therefore hope, and often seem to think, the co-operators are failing and disappearing. That is all foolishness. For example:

The latest co-operators' year book from England is at hand. It shows that the English Co-operators' Society will be sixty years old next year; that it has now three and a half million members; that it gathers and sells direct to these members between $400,000,000 and $500,000,000 worth of goods a year; that, though it has suffered the same sort of difficulties and losses in the recent panics that other enterprises suffered, it is still sound and solvent to the core; and that, in its own field, it has as good a prospect of growth and prosperity as any old line of business in Great Britain.

This English Co-operative Society is the best evidence of what co-operation can do, not only in the simpler business of buying and selling without interference of middlemen, but also in the difficult business of producing food and clothes co-operatively.

According to the report at hand, it has 33,500 acres of farms

A FAILURE?

¶This article is by one of the best financial writers in New York. Now read, on page 45, a farmer's view

in England and 29,000 acres in India and Ceylon. It has 112 factories, mills and mines. It makes shoes, jams, automobiles, cigars, corsets, bicycles, soaps and a hundred other sorts of articles that its members eat or wear. It produces and sells more than $100,000,000 worth of its own manufactures a year, besides the vast quantities that it buys ready-made and distributes practically at cost among its members.

This society has had heavy losses. It recently had labor troubles. It has had even strikes. All this has been and is being used to prove that co-operation, even in England, is not a success. Yet it proves just the contrary, for the co-operators have now settled all the difficulties, paid all losses and are going ahead as energetically as ever. No old line business of the usual sort could do more.

¶In this article Mr. Hinman gives some interesting side lights on the English Co-operators' Society — the mother of all modern co-operative buying and selling organizations.

So successful is this society up to this date that Sidney Webb says it is one of the rocks on which the new labor commonwealth of England will be founded. That remark is quoted merely as an evidence of co-operative success. To the writer it does not seem likely to come true. Why? In the answer there is consolation for the business man who objects to co-operative enterprise because it may take the bread out of his mouth.

The answer is that, after sixty years, this English society, with all its successes, has not gone outside of a certain field, has not swept the usual lines of business off the earth, has not absorbed all or even a great part of the capital, industry and trade of the English people. There are plenty of reasons for this, good reasons, just as good in the United States as in England.

But at that, co-operation will doubtless go on doing good in England as well as in America. The figures that are reported from year to year virtually prove it.

—Reprinted by permission of The Star Co., New York

Fertilizers Do Not Replace Soil Management

"Fertilizers should be employed in addition to and not in place of other good soil-management practices," says Prof. A. T. Wiancko of the Purdue experiment station. "Legumes in the rotation, the use of manure or other organic matter, drainage and liming where needed are all perquisites to the most satisfactory use of fertilizers."

Results of a long-time experiment on a corn-wheat-clover rotation at the Purdue station illustrates this point. The treatment and results were as follows:

Plot 1—Limed 1912 and 1920, six tons manure on corn crop, 19.2 bushels wheat per acre.

Plot 2—Same as plot 1 with 200 pounds per acre acid phosphate on corn crop, 20.5 bushels wheat per acre.

Plot 3—Same as plot 2 with 200 pounds per acre, 2-8-4 on wheat crop, 26.7 bushels wheat per acre.

The significant thing about these results is that in plot 3, the combination of a good rotation, legumes, lime and manure produced conditions resulting in large returns from the use of a suitable complete fertilizer. In other words, as shown by plot 1, the rotation, legumes, lime and manure produced a favorable condition but, compared to the others, a small crop. The addition of complete fertilizer on plot 3 was all that was needed to push the crop into a new field of profits.

Spinach Requires Abundance of Plant Food

"Spinach requires a soil that is well filled with organic matter, is sweet, and contains an abundance of quickly available plant food and a uniform supply of moisture," says Lyman G. Schermerhorn, Professor of Vegetable Gardening at the State Agricultural College.

Stable manure is especially beneficial to this crop when applied sufficiently in advance of seeding. But with the decreasing supply of manure and the increasing cost, it is becoming necessary to use more green manures and commercial fertilizers. A high-grade commercial fertilizer, at the rate of 1,000 to 1,600 pounds to the acre, supplied before planting, gives excellent results. The growth of the crop may be hastened by a side-dressing of nitrate of soda or sulfate of ammonia.

In order to get the best results with commercial fertilizers the soil must be kept in a high state of cultivation.

The first of the fall crops of spinach is sown about the last week in July, and the succession crops every ten days up to September 1 in North Jersey. In South Jersey it is often cut as late as December 15, and sowings for a fall crop are often made up to September 15.

Further directions for growing spinach, as well as the results of recent experiments conducted by Professor Schermerhorn on fertilization and varieties are given in Bulletin 385 of the New Jersey Agricultural Experiment Station in New Brunswick. Free copies may be had on application.—Issued by the State College of Agriculture.

Soil Should Be Right For Alfalfa Crop

The secret of successful alfalfa growing in South Carolina is the preparation of the soil before planting. There are no soils in this state that are naturally adapted to alfalfa. Even our soils that are best adapted to it need to be further fitted before planting.

The obstacles that have to be overcome in our soils, as stated by R. W. Hamilton, Extension Agronomist, are: (1) insufficient lime, (2) insufficient organic matter, (3) lack of inocculation, (4) noxious weeds and grasses, (5) lack of mineral fertilizers.

The most efficient and economical method of overcoming all of these obstacles except lack of inocculation is turning them under during the winter and summer before planting alfalfa. The lime should be applied to the winter legume and this crop turned under deep and followed with a summer legume to which a large part of the phosphoric acid needed for the alfalfa may be applied.

What To Do Now

If no winter legume has been grown, the land for alfalfa should be plowed deep now, limed, phosphoric acid applied, and planted to a summer legume. If stable manure is to be used it should be applied to the summer legume so that the weed and grass seed it contains may germinate and be killed along with the seed already in the soil.

The summer legume should be disc-harrowed and turned under early in the fall so that the seed bed will become firm before time for seeding. If the summer legume following the winter legume makes a too heavy growth to turn under, it should be cut for hay and the stubble turned under.

By the use of legumes, lime, deep plowing and phosphoric acid before planting alfalfa, lime, organic matter and mineral fertilizer will be supplied, the topsoil will be increased in depth and wood and grass seed killed.

Commercial Fertilizers Do Not Injure Soil

Many farmers hesitate to use commercial fertilizers on their crops because they have the impression that the continued use of such fertilizer will "kill" the soil. The yield of crops over a long period of years should be the best indication of the extent to which the soil has been injured. An experiment of this kind which has been conducted on the rotation field at the Missouri agricultural experiment station shows that no injury results. The plot in this experiment has received an average application of 777 pounds of high grade fertilizer every year for the last thirty years, according to Richard Bradfield of the soils department of the experiment station. They have yielded practically as well as the plots receiving six-ton annual applications of barnyard manure. If such enormous applications, for such a long period of years, have shown no harmful results, the average farmer who applies perhaps less than 200 pounds to only one crop in the rotation, or an average of perhaps less than 50 pounds per acre per year, has nothing whatever to fear from the use of fertilizer.

Market Gardener Found Fertilizer Made Profit

"As to fertilization, I sought the advice of college experts and practical growers. Uniformly I was advised to be liberal. I screwed up my courage when I figured the bill it would mean, but went the limit of the advice." That is how Gilbert S. Watts, a young market gardener at Bellwood, Pennsylvania, described his experiences recently in getting started in the business.

He gave all his vegetables 1,000 pounds per acre of high-analysis fertilizer; a good bit getting twice

that amount. "The early cabbage," he said, "received 1,500 pounds of 3-8-5 broadcasted and harrowed in and 500 pounds more of bone when the plants were set." When two-thirds grown, 200 pounds of nitrate of soda was top-dressed on. One row had 400 pounds and it was 50 per cent. more profitable, being early and heavier.

Speaking of the results obtained, Mr. Watts remarked, "Most of the data on vegetable crop fertilization shows that the highest rate has given the greatest profit. Many growers have observed the same thing. What we need greatly is to know where the limit of profitable fertilization lies."

5-8-5 Gives Good Results on Sweet Corn

I grow about 40 acres of sweet corn, planting first week in April, and begin cutting about 4th of July. I put no fertilizer in with the corn but when it is breaking through the ground I apply 800 pounds per acre of 5-8-5 fertilizer on top of the row and harrow it in. When corn is about six inches high I side-dress with same amount. I wish to know if it would do as well to broadcast 1,500 pounds per acre. —E. J., Burlington County, New Jersey.

The practice described in your letter would indicate that your land is naturally in a good state of fertility and that, for this reason, the broadcasting of 1,500 pounds of a 5-8-5 fertilizer should give you entirely satisfactory results in the growing of sweet corn. It is only where smaller amounts of fertilizer per acre are used and where the land is not in a high state of cultivation that the application of fertilizer in the row is usually to be preferred. —J. G. L., *Pennsylvania Farmer.*

Every State Should Be Represented

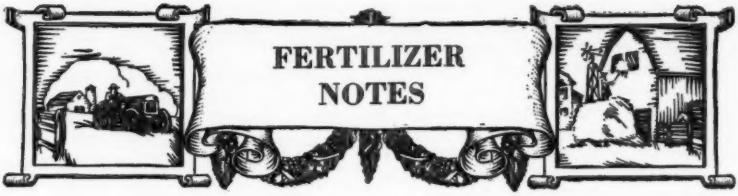
THIS Department—"With the Soil Experts" cannot be *written*—it must be *compiled.*

BETTER CROPS is sent to every man in every Agricultural College, Experiment Station and County Farm Bureau in the United States. The material in this department, then, should be of interest to all soil experts in every state.

I've started the department out this month as best I could. Next month I want *you* folks to fill this section. There are over 12,000 Soil experts on our subscription list, and if each one would send in one six-line item, the department would get along swimmingly!

Will you help me out by doing your share?

Jeff



Fourteen Standard Fertilizers For Florida

All crops needs for added plant food are met by the fourteen standard fertilizer mixtures being recommended by the Florida Experiment Station through R. W. Ruprecht, chemist, according to a study of the needs of various crops of the state.

In discussing the standard fertilizers, Dr. Ruprecht says that every farmer should insist upon these formulas in ordering and that purchases should be by analysis rather than by brand name. He expresses the opinion that if the farmers of the state would do these things, the prices of fertilizers would be reduced.

The various formulas are mentioned below according to the various crops for which generally recommended:

For general field crops, such as corn, cotton and peanuts, use the 3-9-3. (The first figure stands for the percentage of ammonia in the mixture, the second for available phosphoric acid, and the third for potash.)

For sweet potatoes, use the 4-8-4.

For general truck crops, particularly watermelons, cantaloupes and Irish potatoes, use either the 5-7-5 or the 5-8-5.

Celery, lettuce and cabbage would take the 5-5-5.

Peas, beans, young pecan trees, citrus nursery stock would take 4-8-3, also young grove trees for their spring application.

For sweet potatoes, Irish potatoes, tomatoes, sugar cane, bearing pecan, peaches and the home vegetable garden, use the 4-8-6.

For general truck crops or cabbage on clay soils, the 5-7-3 should be found suitable.

If the land is poor, use the 6-6-4 on general truck crops and cabbage.

If the soil is high in organic matter, use the 3-8-5 for tomatoes, also for summer and fall citrus applications.

On average land bearing citrus calls for either the 3-8-8 or the 3-8-10 for fall and winter applications.

If the land is rich hammock, bearing citrus needs the 2-8-10.

The 4-8-8 is all right for citrus in spring. It is also a good tomato fertilizer.

Florida Fertilizers Must Show Content

A legal procedure for the operation of businesses under declarations of trusts and an act providing that commercial fertilizer be labelled as to its contents became laws of Florida, July 1. The act dealing with declarations of trusts merely provides for the procuring of a certificate from the secretary of state upon payment of $150, and subject, of course, to the laws of the state governing operations coming under that class. A penalty of $1,000 is provided for failure to comply with the terms of the act.

The fertilizer label law gives the purchaser for the first time in this state, according to its framers, the information as to its full contents.

Under the terms of the measure all commercial fertilizer must be labelled as follows: Name or brand of the fertilizer or fertilizer material; address of the manufacturer or jobber; net contents of package in pounds, and a chemical analysis showing minimum percentages, of available ammonia, insoluble ammonia, available phosphoric acid, insoluble phosphoric acid, water soluble potash and total plant food; the maximum percentages of chlorine and moisture and a statement of the material from which it is made.

A third act along these lines which became effective Sunday provides that anyone desiring a chemical analysis of purchased fertilizer may send samples to the commissioner of agriculture. The samples must be witnessed by disinterested parties as to their having been taken from the package of which the anaylsis is desired.

Report Heavy Fertilizer Sale in Arkansas

During the eight months from October, 1922, to and including May, 1923, fertilizer sales in Arkansas amounted to 74,598.91 tons, according to the report of the fertilizer department filed in the Bureau of Mines, Manufactures and Agriculture.

The heaviest purchases were made in March, when 28,007.38 tons were bought, considerably more than a third of the total. The smallest amount purchased was 101.70 tons in October. The present season's fertilizer business was almost twice that of last season, when only 40,325.29 tons were purchased for the entire year beginning October 1, 1921, and ending September 30, 1922.

The sales by months this season were: October, 101.70 tons; November, 226.35; December, 340; January, 5,848.18; February, 13,229.40; March, 28,007.38; April, 25,062.69; May, 1,713.21.

Pennsylvania Plant Food Cost Six Millions

The approximate valuation of the nitrogen, phosphoric acid, and water soluble potash contained in the more than 320,000 tons of fertilizer sold in the state of Pennsylvania last year was $6,310,866, according to a recent compilation of fertilizer registration made by the bureau of chemistry, Pennsylvania department of agriculture.

The figures cover every brand of fertilizer offered for sale in the state. Based on the guaranteed analysis of these fertilizers, it is estimated that the fertilizers supplied 3,506 tons of nitrogen, 34,698 tons of phosphoric acid, most of which was in available form, and 9,334 tons of potash in water soluble form.

37 Per Cent. of Cotton Acreage Fertilized

Increased use of fertilizer on the cotton acreage this year as compared with last year is reported to the United States Department of Agriculture. More than 37 per cent. of the acreage has been fertilized as compared with 32 per cent. last year.

A number of individual states show larger gains. In Georgia 93 per cent. of the total cotton acreage received fertilizer this year, or 10 per cent. more than last year's acreage. Florida shows 88 per cent. of the cotton acreage fertilized or 8 per cent. more than in 1922. Alabama 88 per cent., an increase of 10 per cent.; Mississippi 44 per cent., an increase of 14 per cent.; Louisiana 38 per cent, or an increase of 18 per cent., and Arkansas 31 per cent., or an increase of 16 per cent.

The stuff that pays dividends

THE man who plows—who plants, cultivates and harvests—is interested only in *results.*

He believes in fertilization because it increases the fruit of his labor. He wants to maintain permanent soil fertility; and he knows that potash is the stuff that pays dividends.

But there are several *brands* of potash—all the brands are not equally efficient. The county agent who has the interests of his farmers at heart; the honest fertilizer mixer who wants to turn out good goods; the dealer that is building good-will—these *insist* on Genuine German Potash.

And *you* should insist on it. "PICA" is the brand name of the Genuine German Potash Salts imported by the

POTASH IMPORTING CORPORATION OF AMERICA

81 Fulton Street ***New York***

PICA GENUINE GERMAN POTASH

J. S. Carrol says that Smith County, Texas, had the first County Agent in the United States. If there had been no boll-weevil maybe there never would have been a County Agent!

The First County Agent in the UNITED STATES

By J. S. Carrol

THE county agent is the outgrowth of the Farmers' Co-operative Demonstration Work which was inaugurated and so successfully conducted by the late Dr. Seaman A. Knapp of the United States Department of Agriculture.

In 1903 when the Mexican boll-weevil was rapidly spreading over and devastating the cotton fields of Texas, leaving ruin in its path, Dr. Knapp was hurried to the scene to study the situation and to do what he could to help the cotton growers in their losing fight. He confronted a serious situation and realized the urgent need of quick action.

With no appropriation available at this time with which to fight the boll-weevil, Dr. Knapp called upon the local bankers, merchants and other business men for funds for the purpose of inaugurating under his supervision a practical field demonstration of the best and most modern methods of farming under boll-weevil conditions. Improved methods of cultivation, fertilization, rotation, and diversification were used. The demonstration proved a success and attracted the attention of many farmers throughout that section.

In 1904 Congress made an appropriation for use in fighting the boll-weevil and with a fund of $40,000, supplemented by local contributions, Dr. Knapp increased the number of demonstrations and employed several well-equipped agents to take charge of large districts and supervise the work. This marks the real beginning of the Farmers' Co-operative Demonstration Work.

As the work developed, Dr. Knapp realized that it could be made more effective by reducing the territory assigned to an agent and in this way the county was used as the unit.

The distinction of having the first county agent in the United States goes to Smith County, Texas, the appointment being made in the fall of 1906.

At this time there was no State law authorizing counties to appropriate money for (*turn to page 46*)

VIRGINIA CAROLINA
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3	10	4	
2	12	2	Sulphate of Ammonia
2	8	10	Dried Ground Blood
2	10	4	
2	8	5	Ground Animal Tankage
0	12	4	Pure Ground Bone

We are prepared to furnish Potash Salts in any quantity

YORK CHEMICAL WORKS
YORK, PA.

¶ A southern farmer who prefers to remain anonymous wrote this thought-provoking article on

Increasing *the Income on the Average Farm*

THE one problem confronting the people of this country at this time that, in our opinion, overshadows everything else is that of increasing the income on the average farm. It is not one that should challenge the attention of the farmer alone, as some seem to think, but all classes of people.

We are cultivating less land in 1923 than we did in 1922, due to the fact that a large number of farmers are leaving the farm and moving to town.

Why is this? Simply because the average farm has ceased to be sufficiently profitable to enable the farmer to meet his obligations and properly support his family.

Then what is the remedy? Some say that if we will improve our soil and increase our yields that it will increase our profits and solve the problem. Some assert that we have made no progress in production, consequently we cannot meet the increased cost of more modern standards of living.

There is no question that as a rule we have been negligent of our soils and that in many cases our methods of farming are faulty. These are fundamentals that should certainly occupy a good deal of our attention. However, the assertion that we have made no progress in this respect is not true. We say diversify and the people have diversified. For instance, in South Mississippi the sweet potato crop went from almost nothing as a commercial crop to a surplus of over 800 cars in less than ten years. In the same length of time the cane syrup crop grew to a surplus of more than a million gallons. The same is true of a number of other crops. Did this bring prosperity? Not much. The profit on the syrup and potato crops last year, for instance, was so small that this year both crops are reduced. Why was this? Do the people not want syrup and potatoes? Certainly they do and they are using them in increasing quantities, but the farmers do not get the profits. This is what formerly happened. The farmers produced the syrup, sold it to a local buyer, who, of course, sold it to a standardizing plant for a profit. The standardizing plant sent out a traveling salesman to work the jobbers at a good salary and a profit. The jobber sent a salesman to work the retail trade at a good salary and a profit to the jobber. The retailer sold the syrup to the consumer at a profit. Now this meant one of two things, maybe both. The consumer had to pay too much or the grower did not get any profit at all. This same thing is happening with other products. *(continued next page)*

J. S. *Carrol's story of* The First COUNTY AGENT

(*continued from page 42*)

the purpose of co-operating with the United States Department of Agriculture in employing county agents and the funds for this work were supplied by the Federal Government, supplemented by local contributions.

However, in 1908, the Legislature of Mississippi passed a law creating the Office of County Commissioner of Agriculture and as Adams County made the first appropriation for this purpose, it must be given the credit of having the first agent employed on a co-operative basis.

Alabama, Florida and the other Southern States soon followed with similar laws and co-operated with the United States Department of Agriculture in employing County Agents.

The successful outcome of this work soon attracted the attention of the agricultural authorities and the leading business men throughout the United States with the result that in May, 1914, Congress passed the Smith-Lever Bill, appropriating money for extension work throughout the country and the employment of County Agents and Home Demonstration Agents in co-operation with the different states.

This important work has grown and expanded to such an extent that today out of a total of 3,059 counties in the United States there are about 2,228 County Agents and some eight hundred Home Demonstration Agents.

"Increasing the Income on the Average Farm"

(*continued from page 45*)

We have only taken syrup as a convenient example. What is the remedy?

Co-operative marketing. Can we cut out all dealers and sell direct to the consumer? We do not think so. It would not be feasible for the grower to undertake to retail his products to the actual consumers, and honest advocates of co-operative marketing make no such claim. We seek to destroy no man's business that is performing a necessary service, and dealers are necessary. We do, however, expect to eliminate a string of unnecessary dealers.

For instance, there is a spread of approximately $25 per bale on cotton between the grower and the mills. This means that the mills pay approximately $725,000,000 more for the cotton crop than the farmers receive. That is more money several times over than the Government appropriated for agricultural purposes for the last two years. Does anyone claim that that is necessary?

Besides, the elimination of unnecessary speculation by no means constitutes the sole benefit of co-operative marketing. It will enable us by co-operative effort to standardize and greatly improve the quality of the product, will enable us to protect from waste and will furnish an incentive that will bring about greatly increased production.

Co-operative marketing is here to stay. It will benefit not only the farmer, but by increasing his purchasing power, benefit the business man as well. Then it should have the undivided support of the whole people.

Armour's

BIG CROP *Fertilizers*

Do you buy a horse just because its name is Dobbin or Daisy? No! You look at its teeth, feel of its legs, try out its wind and hitch it up to make sure it will pull.

Do not buy your fertilizer "at the halter"! "Look at its teeth," the analysis! See if it will "wind and work," if it is high grade!

The analysis is part of the name of every BIG CROP FERTILIZER. A fancy brand name may cover up a low analysis. There's a BIG CROP BRAND for every crop and soil condition —and all are of high analysis. A "Corn King" of doubtful, low analysis can not meet the needs of that crop on all of the different kinds of soil.

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PRIZE CONTEST

CONDITIONS *of the* CONTEST!

Who Is Eligible—Any person connected in any way with the practice of agriculture may enter this contest.

Subject—The subject must be "What Fertilizers Have Done for My County (or My State or My Country)."

Length—No article will be considered in this contest that contains over 2,000 words. Short articles of 500 to 1,000 words will have as good a chance to win the prize as any 2,000-word story.

Manuscript—Articles should be neatly typewritten on one side of white paper, preferably regular letterhead size, 8½ x 11 inches, but the judges will not be influenced unfavorably toward any story not so written.

Contest Ending—This contest begins the day you receive this issue of BETTER CROPS. It closes midnight, Saturday, December 1st, 1923. All manuscript in envelopes bearing a post mark showing that they were mailed after this time will not be eligible.

Basis of Award—There is only one prize award in this contest—the First Prize of Fifty Dollars ($50.00) in gold. The basis of award will be purely on the excellence of the presentation of the facts. In the event of a tie, the writers of each of the winning manuscripts will be awarded Fifty Dollars ($50.00) in gold.

Method of Payment—As the contest closes midnight, Saturday, December 1st, 1923, announcements of the prize winner will be made in the January, 1924, issue of BETTER CROPS, and the prize mailed to the winner on December 20th, 1923, five days before Christmas.

Right to Publish—The Better Crops Publishing Corporation reserves the right to publish and copyright each and every manuscript submitted in this contest, either before or after the closing of the contest. No manuscript submitted will be returned.

$50.00 *in* GOLD!

$50.00 *in* GOLD!

MENT

FOR the best article on the subject, "What Fertilizers Have Done for My County [or State or Country]", the publishers of BETTER CROPS will award a prize of Fifty Dollars [$50.00] in gold.

Read the conditions of the contest, and then get busy on your story. The time is short, but you have plenty of time to write an article that may win the prize.

That each contestant may feel sure of fair treatment, three men have been selected and have agreed to act as judges:

Mr. HUBERT W. COLLINGWOOD
Editor of the RURAL NEW YORKER

Mr. E. V. THOMPSON
Eastern Manager of COUNTRY GENTLEMAN

Mr. V. E. PRATT
Publisher of BETTER CROPS

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President, Armour & Company
ALFRED P. SLOAN, JR.
President, General Motors Corporation

The Nervous Patient

A dentist had to crawl under his auto in order to make some adjustment in the machinery. Applying the monkey wrench to it he said soothingly, "Now this is going to hurt just a little."

Neutrality

It was during the impanelling of a jury; the following colloquy occurred: "You are a property-holder?"

"Yes, your honor."

"Married or single?"

"I have been married for five years, your honor."

"Have you formed or expressed any opinion?"

"Not for five years, your honor."

A Warning Sound

"Jim, I see that your mule has U. S. branded on his hind leg, I suppose he was an army mule and belonged to Uncle Sam?"

"No, suh; dat U. S. don't mean nothin' 'bout no Uncle Samuel. Dat's jess a warnin'. Dat U. S. jess stand fo' Un Safe—'at's all."

No Waits! No Delays!

"Boy, does yo' get a letter from de Ku Kluxes, what yo' gwine do wid it?"

"Read it on de train."

Worse

"Your husband has been ill. Is his condition critical?" asked the vicar, who was paying his monthly call.

"It's worse than critical," replied the worried-looking woman; "it's abusive."

Sounded Difficult

Down in Texas the short cotton crop forced a large number of country Negroes to the cities. One of them applied for a job at one of the large employment agencies.

"There's a job at the Eagle Laundry," said the man behind the desk. "Want it?"

The applicant shifted uneasily from one foot to the other.

"Tell you how it is, boss," he said finally. "I sure does want a job mighty bad, but de fack is I ain't never washed a eagle."

He Kept Moving

A London zoo keeper took care of a new lion which the zoo had just bought. The animal was a bit wild, and one of the keeper's friends asked, "Mike, does the lion ever bite you?"

"He hasn't yet," replied Mike, "but he frequently bites the place where I recently was!"

Re-form

Reformer: "Multitudes of our young women are parading about the beaches scantily clad."

Voice from the Rear of Hall: (tired but happy): "Ah, yes—the shock troops!"

A Bad Mistake!

Nurse: Doctor, did you ever make a serious mistake in your practice?

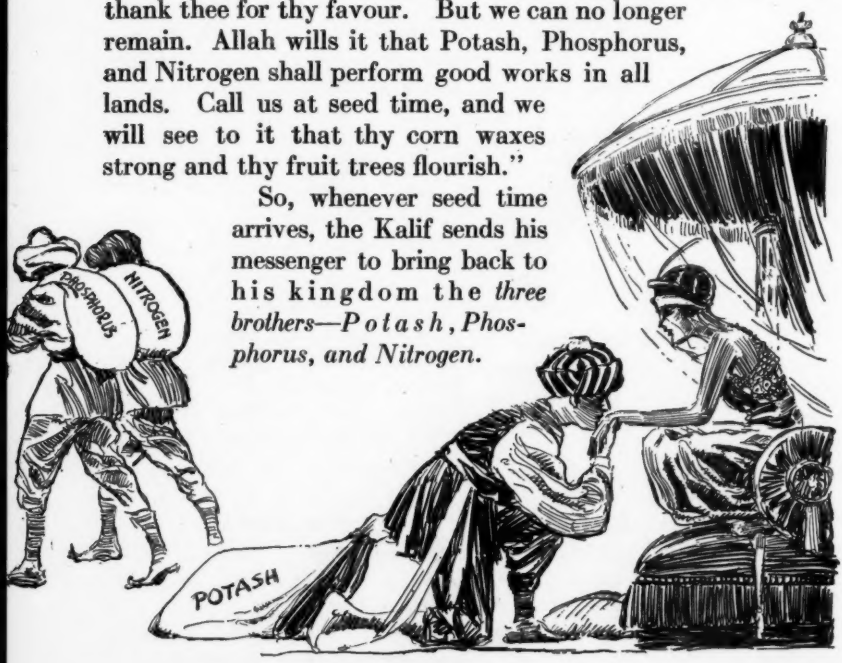
Doctor: Yes. I once cured a millionaire in three treatments.

(*continued from page 18*)

the three sacks are taken together. But if thou be generous and grant them their freedom so that we can all set to work together, then wilt thou and thy land be prosperous for all time." Then spoke the Kalif, "If thou hast spoken truly, Stranger, thou shalt wed my daughter, but if thou hast lied, then thou must die." Then he sent his Vizier with the stranger to the prison. And when Potash saw his brothers, he embraced them and said, "My dear brothers, know ye now that ye have done me a wrong? Why did ye wish to leave me, the youngest, behind? Ye should at any rate have known that without me, Potash, ye could accomplish nothing. I have now come to succor ye. Promise to abide by me with your sacks, and then ye shall be free." And the brothers agreed willingly and said: "We have seen that we did wrong; we will in future go hand in hand together."

The brothers then sowed the content of each sack, mixed together upon the fields, which now yielded corn, straw, fruits and grapes in plenty. The Kalif was happy once more and wished to give his daughter as wife to the youngest brother, Potash. But the latter said, "May the God of Mohammed thank thee for thy favour. But we can no longer remain. Allah wills it that Potash, Phosphorus, and Nitrogen shall perform good works in all lands. Call us at seed time, and we will see to it that thy corn waxes strong and thy fruit trees flourish."

So, whenever seed time arrives, the Kalif sends his messenger to bring back to his kingdom the *three brothers—Potash, Phosphorus, and Nitrogen.*



You have lots to read—but have you these

These and other important books on agricultural subjects, formerly available through the Soil and Crop Service of the German Kali Works, may now be obtained, free of charge, from the

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81 Fulton St. NEW YORK

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Fertilizers that get results—

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Manufacturers of Fertilizers

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Oliver Cordrey, Vice-Pres.
Oscar L. Morris, Sec'y & Treas.
John L. Morris, Asst. Sec. & Treas.

Another Plant Disease Conquered

(*continued from page 22*)

is not readily obtainable Sulfate of Magnesia, ordinary Epsom Salt, used at the rate of 100 pounds per acre, will supply the required magnesia.

It is, however, cheaper to get the potash and magnesia combined in the German Sulfate of Potash Magnesia, also called Double Manure Salt, than to buy Sulfate of Potash, Epsom Salt, and Dolomite separately.

The bad effect of chlorin on the burning quality of tobacco is well known, and for this reason Muriate of Potash, Kainit, and ordinary 20% Manure Salt, all of which contain very large amounts of chlorin, should not be used in tobacco fertilizers where high quality is sought.

Another well established but less well known fact is that, other things being equal, the higher the potash content of tobacco the better its quality.

Recently some experiments have been conducted, using equal parts of German Sulfate of Potash and Sulfate of Potash Magnesia. This combination would supply 3 parts of Potash and 1 part of Magnesia. A moderate application for tobacco is 200 pounds, per acre, of actual Potash, or 550 pounds of a mixture of equal parts of Sulfate of Potash and Sulfate of Potash Magnesia (Double Manure Salt) would contain this quantity of actual Potash and 66 pounds of Sulfate of Magnesia, an amount ample to prevent "sand drown."

These data were prepared by consulting the following:

Article by W. W. Garner, J. E. McMurtrey, E. G. Moss, Bureau of Plant Industry, U. S. Department of Agriculture (Science LVI, No. 1447, September 22, 1922.)

Article by E. G. Moss, Assistant Director Tobacco Branch Experiment Station (Extension Farm-News, North Carolina, Vol. IX, No. 5, January, 1923).

Report by W. W. Garner, J. E. McMurtrey, C. W. Bacon, Bureau of Plant Industry, U. S. Department of Agriculture, and E. G. Moss, Bureau of Plant Industry, U. S. Department of Agriculture, and Assistant Director, Tobacco Branch Station, North Carolina, Department of Agriculture (Journal of Agricultural Research, Vol. XXIII, No. 1, January 6, 1923).

Do You Like Your JOB?

(*continued from page 6*)

foreordained us to be Wall Street brokers or what-not.

There seems to be no future. Plutocrats whizz by us in Multisix sedans, leaving us in a whirl of dust. The cotton is full of weevil, the wheat is drooping with rust, the banks are not in a position to extend further credit. The world is black, and spots of it are black and blue.

To blame the instrument—to exude the acid and froth at the mouth—would be the petty part of a palsied workman—only the bungling plumber blames the torch when he finds he can't wipe the joint.

The world is all right—the job is all right. It is we who are awkward boobs—crack-brained—yokels unable to deliver what the world expects of us.

Let us get busy. There is work to do. The world needs food—the soil needs fertilizer—the vine needs pruning—the organization needs our boost. Let us cease excreting the fizzling "if." There is no "if"—no "and" and no "but."

We will never have a better job—and even if there were a chance to make a change, in the womb of time we would only find ourselves worse off—from the frying pan into the fire—the whining symphony we now exhale would be doubled in brass—if we are not satisfied now, we never will be.

So let us to the job. Boost our game. Seek to improve it. As it soars, so we soar with it.

William Gilchrist, *President*
J. G. McCormick, *Sec'y-Treas.*

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Importers of potash salts, nitrate of soda and other fertilizer materials

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No suggestion is made as to the subject. The editors simply want articles that will be of intense interest to those who constitute its readers—County Agents, Agronomists, Experimental Farm Men, State College Soil Experts, etc.

An easy way to earn money. Two thousand words, $20. But make your story *under* two thousand words, if possible.

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81 Fulton Street New York

762 Eggs Pay Plasterer One Day

(*continued from page 7*)

take care of replacements on old cars. All well organized. Well greased. A system that can't be beat.

But, proving the value of organization, an "outlaw" busted out of the Rubber Club, it is said, and started to make tires on a large scale, paying no heed to demand. What happened. You remember. Tires tumbled. Every tire manufacturer suffered, including the man who started the landslide. As long as exactly the right number of tires were produced prices were held at a satisfactory level. As soon as the oversupply came into the market prices fell.

But can farmers organize for their own protection? You bet they can. And what is more, they are doing it. It comes slowly, but it is coming. The farmer is naturally suspicious of business, of banks, of corporations. When he is well organized, his statisticians will tell him just how much wheat he shall raise, and he will raise that amount and no more. His surplus land and energy will be put into other crops, also recommended by his statisticians. And then it will take the plasterer three days of labor to pay for a dozen eggs, instead of 762 eggs for one day's labor. The balance will be struck!

See Prize Contest Announcement on Page 48—*you* may win *Fifty Dollars!*

What About WHEAT

Jeff McDermid's comments from page 11:

after it is harvested—that is, it shrinks unless the proper fertilizer is used. If a man raises 20 bushels of wheat per acre and it shrinks to 16 bushels he has lost the profit on his crop. One of the solutions of the wheat problem is to so fertilize the soil as to prevent this inordinate shrinkage.

And why is it that no one calls attention to the fact that wheat is graded? All wheat does not sell for the same price. There is a difference of quite a few cents per bushel in the various grades. Better seed, more careful cultivation, better fertilizers—all of these must be brought into play. In addition a more diversified system of farming must be advocated. Farmers may no longer devote all their time and energies to the raising of wheat. It is unsafe and probably will be unsafe until the Government takes a hand in the matter.

The farmer whose income is derived from corn, wheat, livestock, hay and a diversified line of small crops is on a safe and sane basis—and he is not worrying much.

Lime a Tonic?

(*continued from page 23*)

blue. Simply make up a ball of the soil, tighten it between the palms, then break it open and insert the litmus paper, and press the ball together again, leaving it for a while.

Lime should be applied if the soil is acid, for an acid soil has not the right physical condition for the proper utilization of fertilizer. But do not forget that lime does not, and cannot replace fertilizer. It is a tonic and not a food.

Use high-grade fertilizers for big yields

We recommend:

For cotton: 8-4-4

For truck, with potash from sulphate of potash, especially for potatoes 7-5-5

High-Grade Acid Phosphate and Potash Always in Stock

RELIANCE FERTILIZER COMPANY

Savannah, Georgia

"35 years' experience back of every sack"

Fertilizers of Quality—

ANIMAL
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MATTER

F. W. TUNNELL & COMPANY
INCORPORATED
15 North Fifth St.
PHILADELPHIA

Farmers Borrow $1,000,000,000

(*continued from page 29*)

for cash instead of credit. Every advertiser, manufacturer, merchant, and dealer knows what this means. It will mean that the farmer no longer will have to be carried by the dealer, the dealer by the jobber, the jobber by the manufacturer and the manufacturer by his bank. How costly that old method of doing business is known to every reader of *Better Crops*. Gradually to substitute for it the new method of cash transactions will of itself be a tremendous benefit to all concerned.

Profit in Quick Sales

Quick sales on small margins for spot cash are more profitable for all concerned than long prices on long credits carried at long costs.

Of course many farmers will need time to turn themselves. Their credits are intermediate—six months to one, two or three years, in contrast to the merchants' two, three or four months. The new credit bank affords a market for such intermediate paper which runs longer than the law allows reserve banks to grant.

In other words, the country dealer and the country bank can unload upon the credit bank the farmer's intermediate paper, which, because it runs so long, would not be available for rediscount with the Federal Reserve Bank. What the latter institution has been for commercial business, the new Federal Intermediate Credit banking business is to be for the agricultural trade.

Where Can Genuine German Potash Be Secured?

HERE IS A LIST OF THE DISTRIBUTORS OF GENUINE GERMAN POTASH SALTS:

Grasselli Chemical Co.	Birmingham, Ala.
Arkansas Fertilizer Co.	Little Rock, Ark.
Berkshire Fertilizer Co.	Bridgeport, Conn.
Olds & Whipple, Inc.	Hartford, Conn.
Rogers & Hubbard Co.	Middletown, Conn.
Wilson & Toomer Fertilizer Co.	Jacksonville, Fla.
Gulf Fertilizer Co.	Tampa, Fla.
Southern States Phosphate & Fertilizer Co.	Augusta, Ga.
Mutual Fertilizer Co.	Savannah, Ga.
Read Phosphate Co.	Savannah, Ga.
Reliance Fertilizer Co.	Savannah, Ga.
Southern Fertilizer & Chemical Co.	Savannah, Ga.
Georgia Fertilizer & Oil Co.	Valdosta, Ga.
Armour Fertilizer Works	209 W. Jackson Blvd., Chicago, Ill.
Swift & Co.	Union Stock Yards, Chicago, Ill.
Rauh & Sons Fertilizer Co.	Indianapolis, Ind.
Calumet Fertilizer Co.	New Albany, Ind.
Federal Chemical Co.	Louisville, Ky.
Baugh & Sons Co.	Baltimore, Md.
Griffith & Boyd	Baltimore, Md.
Miller Fertilizer Co.	Baltimore, Md.
Ober & Sons Co.	Baltimore, Md.
Piedmont Mt. Airy Guano Co.	Baltimore, Md.
Tilghman Co., Inc., W. B.	Salisbury, Md.
Meridian Fertilizer Factory	Meridian, Miss.
Tupelo Fertilizer Factory	Tupelo, Miss.
The American Agricultural Chemical Co.	2 Rector Street, New York, N. Y.
International Agricultural Corporation	61 Broadway, New York, N. Y.
Caraleigh Phosphate & Fertilizer Co.	Raleigh, N. C.
Acme Manufacturing Co.	Wilmington, N. C.
Smith Agricultural Chemical Co.	Columbus, Ohio
Thomas & Sons Co., I. P.	Philadelphia, Pa.
Tunnel & Co., F. W.	Philadelphia, Pa.
York Chemical Works	York, Pa.
Etiwan Fertilizer Co.	Charleston, S. C.
Maybank Fertilizer Co.	Charleston, S. C.
Planters Fertilizer & Phosphate Co.	Charleston, S. C.
F. S. Royster Guano Co.	Norfolk, Va.
Priddy & Company, Inc.	Norfolk, Va.
Robertson Chemical Corp.	Norfolk, Va.
Virginia-Carolina Chemical Co.	Richmond, Va.

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WILSON & TOOMER FERTILIZER CO.
Jacksonville: Florida
Established 1893
Main Offices: 772 West Bay St.

Why People Leave FARMS

(*continued from page 27*)

labor in the city—six to eight hours in unionized industries as against sixteen hours a day on the farm.

The greater opportunity for achieving success and distinction in commerce and industry in the city.

The opportunity for young people to advance themselves in the city.

The opportunity for all the members of large families to secure steady employment.

The idea some young rural people entertain that farm work is lowering and degrading.

Some young people have to work so hard on the farm that the farm becomes distasteful to them.

The seclusion and isolation of farm life, particularly during the winter months.

The lack of home comforts on the farm in the way of up-to-date conveniences.

The desire of young people to obtain a high school and college education causes them to go to the cities and subsequently to enter into some profession. (At the Pennsylvania State College in 1922 the great agricultural counties of Lancaster, Berks, Chester and York furnished only one-third as many students in agriculture as Philadelphia and Pittsburgh.) The young people from the country are flocking to professional schools and business positions in the cities.

The desire of some country people to get rich quick and the feeling that all they need to do is to leave the farm and start in business in the city.

The high price of land and the large amount of capital needed to successfully engage in farming keeps many from going into it.

The city offers a greater choice of vocations.

There are more conveniences and church privileges in the city.

The small margin of profit in farming as compared to city vocations.

Standard Brands recommended by Agricultural Officials of Ohio, Indiana and Michigan:

BRAND NAME	Ammonia	Available Phosphoric Acid	Actual Potash
Smith's Standard 2-12-6..	2	12	6
Smith's Standard 2-16-2..	2	16	2
Smith's Standard 2-12-2..	2	12	2
Smith's Standard 0-10-10.	0	10	10
Smith's Standard 0-14-4..	0	14	4
Smith's Standard 0-16-0..	0	16	0
Smith's Standard 0-18-0..	0	18	0
Smith's Standard 0-20-0..	0	20	0
We also offer the following Brands:			
Smith's 1-8-7	1	8	7
Smith's 1-8-4	1	8	4
Smith's 1-8-2	1	8	2
Smith's 0-10-5	0	10	5
Smith's 0-10-2	0	10	2

The Smith Agricultural Chemical Company

Factories:

Columbus, Ohio Indianapolis, Ind.

General Offices:

Columbus, Ohio

Improved Averys
Be Sure To See Them

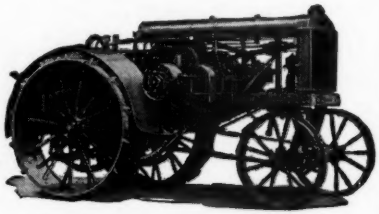
Avery Threshers and Avery Tractors—new and improved — designed in 1923, built in 1923—and now priced to give you the greatest value per dollar ever offered in threshers and tractors.

An Avery Thresher and an Avery Tractor make the most practical threshing outfit that any one can own. Avery Threshers, always champion Grain-Savers, have many new improvements for 1923, which mean better work—easier running—and more profits than ever. Built in "Yellow Fellow" sizes for any size threshing runs.

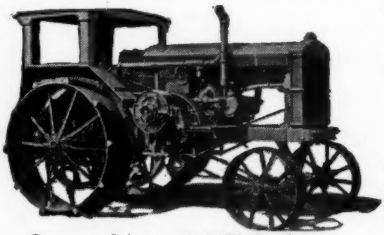
In the Improved Avery Tractor you have a machine giving you the latest and most advanced ideas in tractor design. Built in 20-35, 25-50 and 45-65 H. P. sizes—all with the famous 4-cylinder "Draft-Horse" Motor, Direct Drive Transmission and other features; and all with the Avery 1923 improvements. These include the increasing of motor power 10 to 25%; the adoption of a cooling system with cellular radiator, pump and fan, and a Madison-Kipp Lubricator for oiling the motor. Never before have tractors offered so much horse-power per dollar invested as is now given by Averys.

Our Booklet shows the complete new Avery Line for 1923. Also special circular on Threshers. Every farmer and thresherman should know about the new Averys. Write us today.

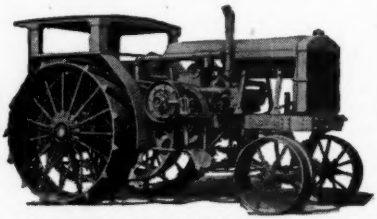
Avery Grain-Saver Thresher



Improved Avery 20-35 H. P. Tractor



Improved Avery 25-50 H. P. Tractor



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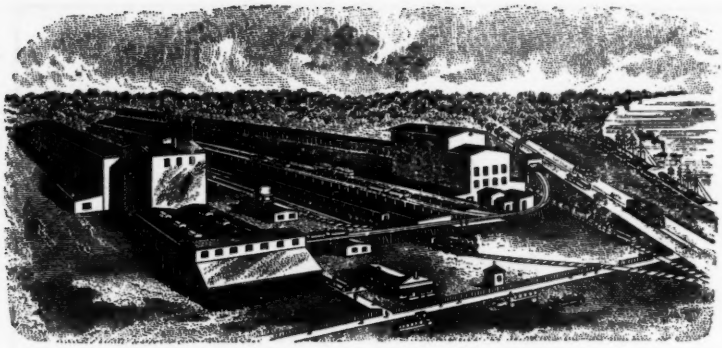

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This volume has been built through fifty-seven years of successful service.

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